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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,682	02/26/2002	David L. Blankenbeckler	M-12013 US	1491

32605 7590 04/03/2006

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EXAMINER

PSITOS, ARISTOTELIS M

ART UNIT PAPER NUMBER

2627

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/085,682

**Applicant(s)**

BLANKENBECKLER ET AL.

**Examiner**

Aristotelis M. Psitos

**Art Unit**

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,7,10-12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,7,10-12 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Applicants' response of 2/17/06 has been considered with the following results.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1,7,10-12 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular, applicants' have amended the independent claim to now recite:

"...., wherein a height for the bumps and a height for the lands exceeds a combined thickness of the phase-change material and the dielectric layer, ...".

However, the examiner cannot readily map such new limitation with the specification as originally filed.

As disclosed, the bump height is +/- 85 nm, as well as the height of the land.

These heights are to be greater than the combined thicknesses of both the phase-changing recording material – whose thickness is also +/- 85nm + thickness of the dielectric layer.

This does not follow. Since none of the dependent claims clarify such, they also fall.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1,7,10,11-12 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The examiner is not clear as to what, how the above identified phrase is to be interpreted. If it is interpreted as analyzed above, then the support for such in the original specification is in doubt.

If, however, the claim is to be interpreted that the combined heights of the bumps and lands is greater than the combined heights of the recording and dielectric layers, this is not clear from the claim language. Support for such a mathematical relationship exists.

As far as the claims recite positive limitations, the following art rejections are made.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al further considered with Ohkawa et al both further considered with Kawanishi and Morita et al. The following analysis is made:

Claim limitation(s)	Reference(s)
1:	Obata et al
A first surface optical storage disc, comprising:	see abstract/figure 1
a circular substrate having a first principal surface	element 100, first principal
and an opposing second principal surface;	surface is the "top" surface, and the
	second principal surface is the bottom
a spiral track of	
bumps formed on a first portion of the first principal	see embossed area 114a
surface, wherein the bumps represent pre-recorded	so represents
information;	
lands formed on a second portion of the first principal surface;	see 114b description at

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and

col. 6 lines 31-38

a phase-change material deposited on the first portion and the  
second portion of the first principal surface : and

see col. 6 lines  
61 plus

a dielectric layer sputtered over the phase-change material:  
the first surface disk having no additional layers overlaying the  
dielectric layer, wherein a height for the bumps and a height for  
the lands exceeds a combined thickness of the phase-change  
material and the dielectric layer, and wherein  
-a data density of the first portion is  
less than a data density of the second portion.

protection film 3  
not designated see  
see secondary  
references/

As noted in the above analysis, the Obata et al reference although providing for a protection layer, does not depict such as a dielectric. Applicants acknowledge the newly inserted spiral track of bumps as being part of the prior art and hence no further discussion is made thereto.

Ohkawa et al discloses the ability of having a dielectric as a protective layer.

It would have been obvious to modify the base system of Obata et al with the above teaching from Ohkawa et al, motivation is to use existing materials known in this environment for their inherent uses and hence save valuable resources such as time, etc. in creating new protective materials.

With respect to the newly inserted structural limitations as interpreted:

$B_h, L_h > (\text{phase} + \text{dielectric}) \text{ thickness.}$

As further noted in Ohkawa et al, the wavelength of the laser beam(s) vary between 400 – 900 nm, and as depicted in figure 5 for instance the dielectric layer has a thickness range of 0-100nm, although various other values are discussed see for instance at col. 7 lines 34-58.

Kawanishi, teaches in this environment, that the height of the bumps is normally  $\frac{1}{4} \lambda$ .  
Furthermore, the recording layer is as disclosed at col. 4 lines 45 plus 100nm.

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Morita et al teach in this environment that prior art land heights were within the range of 70-80 nm, but that he provides values of greater than 100nm and reasons for doing such – see starting at col. 2 Line 35.

It would have been obvious to modify the above references of Obata et al and Ohkawa et al with the additional teachings from Kawanishi and Morita et al for the reasons discussed therein.

Hence:

Bh (100- 225) nm; ( $>100\text{nm}$ )  $>$  (100 nm + 20nm).

With respect to the 15, the pc designated in column 7 lines 16-25 is interpreted to be the polycarbonate limitation of claim 15.

#### ***Response to Arguments***

Applicant's arguments filed 11/7/05 have been fully considered but they are moot in view of the newly stated rejections.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 as relied upon in either paragraph 3 above, and further in view of Pan et al.

The above base reference fails to clarify the material limitation of claim 7. Such material(s) are further taught by the Pan et al reference for use in this environment.

It would have been obvious to modify the base system as relied upon in either paragraphs 1 or 2 above with the additional teaching from Pan et al, motivation is to use equivalent alternatives and hence such a selection would be an obvious manufacturing capability for such reasons as availability, cost, reliability, etc. No unexpected results are seen to occur from selecting such alternative materials.

#### ***Response to Arguments***

The rejection is maintained – no further rebuttal is necessary.

5. Claims 10 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 above in paragraph 3 and further in view of Igarashi

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The limitations with respect to the size of the disc is considered obvious in view of Igarashi, which discloses discs less than 80 mm as standard. Selection of appropriate sized disc is merely an optimization of size and obvious to one of ordinary skill in the art.

It would have been obvious to modify the base system as relied upon in either paragraphs 1 or 2 and further modify them with the above additional teaching from Igarashi, motivation is to provide alternative sized discs so as to be used in a plurality of disc reproducing mechanisms.

***Response to Arguments***

The rejection is maintained – no further rebuttal is necessary.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 above as stated in paragraph 3 above, and further in view of Nakamura et al.

With respect to the limitations of claim 12, because the Nakamura et al document discloses various thickness for the overall disc record, the specific limitation is considered merely an optimization of such, and hence obvious over the combination of references in order to optimize the record medium and save on manufacturing expenses with respect to the profile of the final disc product.

***Response to Arguments***

The rejection is maintained – no further rebuttal is necessary.

***Conclusion***

Ooki et al is cited as also teaching a height of the land as being around 100nm and could be relied upon in the above rejections for such a teaching.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH**

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M. Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-F: 6:00 - 2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aristotelis M Psitos  
Primary Examiner  
Art Unit 2627



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